

traversed. Applicants have, however, changed the term "functional diamine or triamine units" to "functional amine compounds" to provide proper antecedent basis for this term in subsequent dependent claims.

The Examiner also alleges that the term "functionalized" is indefinite because it is unclear if or how such further limits the bis-N-acyl bislactam moieties. It is respectfully submitted that this rejection has been rendered moot by the deletion of the term "optionally functionalized" in claim 12. However, new claim 19 has been added which covers the embodiment which has a functional chain extender. This embodiment may or may not include a functional diamine or triamine unit, as covered by new claims 19 and 20. Claims 15 and 16 have been amended to depend on claim 19 accordingly. Antecedent basis for these claims, as well as the changes to claim 12, can be found on page 4, lines 8 – 13.

The Examiner further alleges that in claim 12, the polyamide-repeating unit R_1 reads on and does not distinguish over the polyamide chain extender moiety R_2 . This rejection is also respectfully traversed. An explanation and examples of R_1 are given on page 6, line 30 through page 7, line 14. These functional amine compounds as described therein are clearly distinguishable from the chain extender moieties, R_2 , given on page 7, line 18 through page 8, line 28. Therefore, withdrawal of this rejection is respectfully requested.

Claim 12 was also rejected as indefinite because the Examiner states that it is unclear as to whether or not the polyamide chain extender moiety R_2 is required, and that this is because the terminology "wherein at least one of ..." indicates that the bis-N-acyl-bislactam moiety is optional. By this amendment, the recitation of "wherein at least one of the functional diamine, functional triamine or functional bis-N-acyl bislactam moieties are present" has been deleted. Instead, Applicant has claimed the invention by two independent claims, the first, claim 12, where functional amine units are present, and the second, claim 19, where functional bis-N-acyl bislactam moieties are present. Antecedent basis for this change can be found on page 4, lines 8 – 13. These changes to the claims should obviate the rejection of claim 12 on this ground.

The Examiner correctly notices that there is no express antecedent basis for "the members of the polyamide repeating units (R_1)". Therefore, the term "the members of" has been deleted from claim 13.

It is noted that claim 14 recites that R_1 includes functionalized diamine or functionalized triamine units. However, claim 12 has been amended so that R_1 already includes functional amine units. Thus, claim 14 is now redundant with claim 12 and has been deleted. In addition, claim 19 has been added to cover the embodiment where the filament includes a reactant polyamide and a functional chain

• extender, with or without the functional diamine or triamine units, and claim 20 has been added to cover this embodiment with the functional diamine or triamine units.

Claims 12, 13, 15 and 16 were rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Japanese 61 - 171732. Claims 12, 13, 15 and 16 also were rejected under 35 U.S.C. §103(a) as being unpatentable over WO 98/47940. These rejections are respectfully traversed. The Examiner states that the Japanese reference teaches reacting a bislactam compound with polyamide, and that the WO reference teaches melt mixing a polyamide with a carbonyl bislactam. However, neither of these references teaches a functional diamine or a functional triamine unit as recited in claim 12. Also, neither reference discloses a functionalized chain extender as recited in claim 19. Thus, Applicant requests that the Examiner withdraw this rejection and allow claims 12, 13, and 15 – 20.

The period for response to the Office Action of October 18, 2002 has been extended by two months with a Petition for Extension of Time, filed concurrently herewith. Should the fee designated with the Petition for Extension of Time be incorrect, please debit or credit Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company). Should an additional extension of time be required, the Examiner is authorized to take such additional extension of time and charge Deposit Account No. 04-1928 for it.

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



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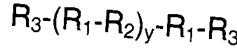
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In showing the changes, deleted material is shown by strike-through, and inserted material is shown by underlining.

IN THE CLAIMS:

12. (Twice Amended) A filament, comprising:
a synthetic melt spun polymer including:
polyamide repeating units ~~or and functional amine compounds diamine or~~
~~triamine units (R₁);~~
polyamide chain extender moieties (R₂), each independently selected from
the group consisting of ~~optionally functionalized~~ bis-N-acyl bislactam moieties;
~~wherein at least one of the functional diamine, functional triamine or functional~~
~~bis-N-acyl bislactam moieties are present; and~~
terminal groups (R₃) comprising at least one of a hydrogen atom and a
hydroxyl group;
the polymer including chains, each independently having a chemical structure:



wherein y is an integer of 1 – 14; and

the filament has a formic acid relative viscosity of at least about 30.

13. (Amended) The filament of Claim 12, wherein ~~the members of the~~ polyamide repeating units (R₁), each independently, are selected from the group consisting of (i) –{CO(CH₂)_k-CONH-(CH₂)_mNH}_n-, where k and m, each independently, is an integer of 1-12, and n is an integer of 10 – 140, and (ii)-{NH(CH₂)_x-CO}_z- where x is an integer of 1 – 12 and z is an integer of 20 – 280.

14. (Deleted) The filament of Claim 12, wherein (R₁) includes ~~functionalized diamine or functionalized triamine units.~~

15. (Amended) The filament of Claim 19-12, wherein the ~~optionally~~ functionalized chain extender moieties, each independently, are selected from the group consisting of bis-N-acyl bislactam moieties.

16. (Amended) The filament of Claim 15 12, wherein the chain extender moieties, each independently, are selected from the group consisting of an isophthaloyl bis-caprolactam moiety, an adipoyl bis-caprolactam moiety, (p-phenylene di-terephthalate) N'N bis-caprolactam, and a terphthaloyl bis-caprolactam moiety.

15. A filament, comprising:

a synthetic melt spun polymer including:

polyamide repeating units (R₁);

functionalized polyamide chain extender moieties (R₂); and

terminal groups (R₃) comprising at least one of a hydrogen atom and a hydroxyl group;

the polymer including chains, each independently having a chemical structure:

R₃-(R₁-R₂)_y-R₁-R₃

wherein y is an integer of 1 – 14; and

the filament has a formic acid relative viscosity of at least about 30.

16. The filament of claim 15, wherein R₁ includes functional diamine or functional triamine units.